

RECEIVED

8:57 am, Jan 04, 2010

Alameda County
Environmental Health

**SECOND SEMI-ANNUAL 2009
GROUNDWATER MONITORING**

**ABE Petroleum LLC
17715 Mission Boulevard
Hayward, California 94539**

**Prepared for
Mr. Paul Garg
ABE Petroleum LLC**

**Prepared by
Sierra Environmental, Inc.**

**December 22, 2009
Project 03-103.00**



Sierra Environmental, Inc.
Environmental Consultants

December 22, 2009
Project 03-103.00

Mr. Paul Garg
ABE Petroleum LLC
33090 Mission Boulevard
Union City, California 94587

Subject: Report for Second Semi-Annual 2009 Groundwater Monitoring, ABE Petroleum LLC, 17715 Mission Boulevard, Hayward, California

Dear Mr. Garg:

Sierra Environmental, Inc. (Sierra) is pleased to present this report summarizing the results for the second semi-annual 2009 groundwater monitoring at the subject location, hereafter, referred to as Site. Figure 1 shows the Site location. The groundwater monitoring was concurred by Alameda County Health Care Services (ACHCS) in a letter dated February 16, 2000, as result of gasoline impact to groundwater beneath the Site.

On December 3, 2009, Sierra obtained and recorded groundwater data, and collected groundwater samples from five (5) groundwater monitoring wells at and near the Site for chemical analysis. Sierra submitted the samples to Accutest Laboratories (Accutest) for chemical analysis. Accutest is a State-certified analytical laboratory (08258CA).

BACKGROUND

Please refer to Appendix A for Site's background information.

GROUNDWATER MONITORING

On December 3, 2009, Sierra performed the second semi-annual 2009 groundwater monitoring at the Site. Sierra's field personnel measured the groundwater levels at MW1, MW2, MW3, MW6, and MW7 (Figure 2) using an electronic sounder. Depth of groundwater was measured to the TOC. Groundwater levels were measured at approximately 21.45' to 25.33' feet below TOC with a northwesterly flow direction during this monitoring event. Table I presents the groundwater measurement data.

MW4 and MW5 were inaccessible due to route 238 expansion project.

Sierra's field personnel purged the wells using bailers. pH, temperature, and electrical conductivity of groundwater were recorded during the purging activities to affirm that groundwater in the wells have stabilized. After completion of the purging, groundwater samples MW-1, MW-2, MW-3, MW-6, and MW-7 were collected from the wells. After collection, the groundwater from each well was transferred into clean volatile organic analysis vials. The vials were sealed with Teflon-septum screw caps, labeled, placed on ice in a cooler, and delivered to Accutest with chain-of-custody documentation.

All sampling and measurement equipment were washed with Liqui-Nox[®] (a phosphate free laboratory detergent), and rinsed with tap water at each measurement and sampling interval. Purged and wash water was stored in 55-gallon drums at a designated location at the Site. Sierra's quality assurance/quality control (QA/QC) protocol is presented in Appendix B.

CHEMICAL ANALYSIS

The samples were analyzed for total petroleum hydrocarbons as gasoline (TPHG) using the United States Environmental Protection Agency (EPA) GC-MS/8260B method. The samples were also analyzed for benzene, toluene, ethyl benzene, total xylenes (BTEX), and fuel oxygenates also using EPA method 8260B. Copies of certified analytical results and chain-of-custody documentation are presented in Appendix C. Copies of the field notes are presented in Appendix D.

ANALYTICAL RESULTS

Table II presents Summary of the analytical results.

CONCLUSION AND RECOMMENDATIONS

No gasoline constituents were detected in offsite monitoring well MW6 and MW7. Concentrations of the gasoline constituents in the groundwater samples collected from the onsite wells have increased during this monitoring event, compared to the 2nd quarter 2009 groundwater monitoring event. Sierra recommends continuing the semi-annual groundwater monitoring at the Site in 2010. Sierra has also recommended performing a dual phase extraction test at the Site in a subsurface investigation report dated September 29, 2009.

LIMITATIONS

The content and conclusion provided by Sierra in this report are based on information collected during its assessment/monitoring, which include, but are not limited to field observations and analytical results for the groundwater samples collected at the Site. Sierra assumes that the samples collected and laboratory results are reasonably representative of the whole Site, which may not be the case at unsampled areas. This assessment/monitoring was performed in accordance with generally accepted principles and practices of environmental engineering and assessment in Northern California at the time of the work. This report presents our professional opinion based on our findings, technical knowledge, and experience working on similar projects. No warranty, either expressed or implied, is made. The conclusions presented are based on the analytical results and current regulatory requirements. We are not responsible for the impact of any changes in environmental standards or regulations in the future.

Please feel welcome to call us if you have questions.

Very Truly Yours,
Sierra Environmental, Inc.

Reza Baradaran, PE, GE
Principal



12/23/2009

A handwritten signature in black ink, appearing to read "Mitch Hajiaghahi".

Mitch Hajiaghahi, REA II, CAC
Principal

Attachments:

- Table I - Groundwater Elevation Data
- Table II - Analytical Results for Groundwater Samples
- Figure 1 - Site Location Map
- Figure 2 - Groundwater Monitoring Well Locations
- Appendix A - Background Information
- Appendix B - QA/QC Protocol
- Appendix C - Certified Analytical Results and Chain-of-Custody Documentation
- Appendix D - Field Notes

cc: Mr. Mark Detterman ACHCS (1 Copy)

**TABLE I
GROUNDWATER ELEVATION DATA**

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to ¹ Water (ft)	Water Table ² Elevation (ft)
MW1	8-18-00	2	99.46	20.32	79.14
	3-30-01			20.30	79.16
	6-22-01			21.91	77.55
	9-20-01			23.56	75.90
	12-27-01			22.59	76.87
	9-24-02			23.69	75.77
	12-17-02			22.75	76.71
	4-2-03			21.15	78.31
	6-12-03			20.64	78.82
	9-29-03			22.95	76.51
	12-04-03			23.70	75.76
	03-09-04			19.80	79.66
	6-24-04			21.44	78.02
	9-09-04			23.30	76.16
	12-21-04			22.92	76.54
	3-16-05			18.99	80.47
	6-09-05			20.02	79.44
	9-22-05	20.69	78.77		
	12-07-05	21.90	77.56		
	3-10-06	17.85	81.61		
	6-7-06	15.91	43.59		
	9-11-06	18.60	40.90		
	12-13-06	20.05	39.45		
	3-12-07	19.47	40.03		
	6-6-07	21.11	38.39		
	9-6-07	22.61	36.89		
	12-14-07	23.50	36.00		
	3-13-08	20.09	39.41		
	6-13-08	22.08	37.42		
	09-09-08	23.57	35.93		
12-12-08	24.42	35.08			
03-12-09	21.22	38.28			
06-04-09	22.52	36.98			
12-03-09	24.18	35.32			

**TABLE I
GROUNDWATER ELEVATION DATA
(CONTINUED)**

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to Water (ft)	Water Table Elevation (ft)
MW2	8-18-00	2	100.58	21.55	79.03
	3-30-01			21.55	79.03
	6-22-01			23.15	77.43
	9-20-01			24.78	75.80
	12-27-01			23.82	76.76
	9-24-02			24.89	75.69
	12-17-02			23.99	76.59
	4-2-03			22.32	78.26
	6-12-03			21.84	78.74
	9-29-03			24.15	76.43
	12-04-03			24.91	75.67
	03-09-04			21.05	79.53
	6-24-04			22.95	77.63
	9-09-04			24.55	76.03
	12-21-04			24.21	76.37
	3-16-05			20.29	80.29
	6-09-05			21.68	78.90
	9-22-05			21.98	78.60
	12-7-05			23.22	77.36
	3-10-06			19.15	81.43
	6-7-06	17.31	43.30		
	9-11-06	19.99	40.62		
	12-13-06	21.48	39.13		
	3-12-07	20.71	39.90		
	6-6-07	22.33	38.28		
	9-6-07	23.85	36.76		
	12-14-07	24.71	35.90		
	3-13-08	21.34	39.27		
	6-13-08	23.29	37.32		
	09-09-08	24.82	35.79		
	12-12-08	25.65	34.96		
	03-12-09	22.45	38.16		
06-04-09	23.68	36.93			
12-03-09	25.33	35.28			

**TABLE I
GROUNDWATER ELEVATION DATA
(CONTINUED)**

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to Water (ft)	Water Table Elevation (ft)
MW3	8-18-00	2	99.69	20.68	79.01
	3-30-01			20.68	79.01
	6-22-01			22.31	77.38
	9-20-01			23.92	75.77
	12-27-01			22.95	76.74
	9-24-02			24.03	75.66
	12-17-02			23.09	76.60
	4-2-03			21.46	78.23
	6-12-03			20.99	78.70
	9-29-03			23.30	76.39
	12-04-03			24.05	75.64
	03-09-04			20.20	79.49
	6-24-04			22.11	77.58
	9-09-04			20.20	79.49
	12-21-04			23.35	76.34
	3-16-05			19.43	80.26
	6-09-05			20.47	79.22
	9-22-05			21.13	78.56
	12-7-05			22.36	77.33
	3-10-06			18.30	81.39
	6-7-06			16.47	43.26
	9-11-06			19.13	40.60
	12-13-06			20.66	39.07
	3-12-07			19.88	39.85
	6-6-07			21.48	38.25
	9-6-07			22.99	36.74
	12-14-07			23.85	35.88
	3-13-08			20.47	39.26
	6-13-08			22.43	37.30
	09-09-08			23.98	35.75
	12-12-08			24.91	34.82
	03-12-09	21.57	38.16		
06-04-09	22.82	36.91			
12-03-09	24.49	35.24			
			59.73		

**TABLE I
GROUNDWATER ELEVATION DATA
(CONTINUED)**

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to Water (ft)	Water Table Elevation (ft)
MW4	6-7-06	2	59.29	15.71	43.58
	9-11-06			18.40	40.89
	12-13-06			19.64	39.65
	3-12-07			19.13	40.16
	6-6-07			N/A ³	N/A
	9-6-07			N/A	N/A
	12-14-08			N/A	N/A
	3-13-08			N/A	N/A
	6-13-08			N/A	N/A
	09-09-08			N/A	N/A
	12-12-08			N/A	N/A
	03-12-09			N/A	N/A
	06-04-09			N/A	N/A
	12-03-09			N/A	N/A
MW5	6-7-06	2	56.31	13.35	42.96
	9-11-06			15.99	40.32
	12-13-06			17.45	38.86
	3-12-07			16.68	39.63
	6-6-07			N/A	N/A
	9-6-07			N/A	N/A
	12-14-08			N/A	N/A
	3-13-08			N/A	N/A
	6-13-08			N/A	N/A
	09-09-08			N/A	N/A
	12-12-08			N/A	N/A
	03-12-09			N/A	N/A
	06-04-09			N/A	N/A
	12-03-09			N/A	N/A

**TABLE I
GROUNDWATER ELEVATION DATA
(CONTINUED)**

Well ID	Measurement Date	Well Casing Diameter (in)	Well Casing Elevation (ft)	Depth to Water (ft)	Water Table Elevation (ft)
MW6	6-7-06	2	56.63	13.64	42.99
	9-11-06			16.25	40.38
	12-13-06			17.72	38.91
	3-12-07			16.95	39.68
	6-6-07			18.47	38.16
	9-6-07			19.96	36.67
	12-14-07			20.81	35.82
	3-13-08			17.46	39.17
	6-13-08			19.38	37.25
	09-09-08			20.96	35.67
	12-12-08			21.81	34.82
	03-12-09			18.58	38.05
	06-04-09			19.77	36.86
	12-03-09			21.45	35.18
MW7	6-7-06	2	57.50	14.50	43.00
	9-11-06			17.12	40.38
	12-13-06			18.58	38.92
	3-12-07			17.81	39.69
	6-6-07			19.32	38.18
	9-6-07			20.87	36.63
	12-14-07			21.30	36.20
	3-13-08			18.34	39.16
	6-13-08			20.15	37.35
	09-09-08			21.31	36.19
	12-12-08			22.29	35.21
	03-12-09			19.45	38.05
	06-04-09			20.36	37.14
	12-03-09			22.13	35.37

1. Depths to groundwater were measured to the top of the well casings
2. Water table elevations were measured in relation to mean sea level (MSL)
3. N/A = Not Accessible

**TABLE II
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES**

Sample ID	Sample Date	Sample Location	TPHG ¹ μg/L	Benzene μg/L	Toluene μg/L	Ethylbenzene μg/L	Xylenes μg/L	MTBE ² μg/L
MW-1	8-18-00	MW1	280,000	10,000	16,000	11,000	49,000	4,000
*	3-30-01		98,000	8,600	14,000	6,300	26,000	7,600
*	6-22-01		110,000	7,500	12,000	5,700	24,000	3,800
*	9-20-01		93,000	8,700	11,000	6,300	27,000	4,600
*	12-27-01		140,000	7,700	11,000	6,500	28,000	7,700
*	9-24-02		110,000	4,600	4,000	4,000	18,000	3,400
*	12-17-02		110,000	6,600	6,700	5,400	23,000	2,900
*	4-2-03		89,000	4,800	6,000	4,600	20,000	5,900
*	6-12-03		69,000	4,100	4,300	3,900	17,000	4,700
*	9-29-03		96,000	7,000	7,700	5,100	22,000	6,200
*	12-04-03		110,000	5,800	5,900	4,300	18,000	4,500
*	03-09-04		130,000	5,900	9,700	4,900	22,000	6,000
*	6-24-04		48,000	5,800	7,500	4,000	18,000	4,000
*	9-09-04		64,000	4,800	7,500	4,500	19,000	2,200
*	12-21-04		53,000	4,800	6,000	3,600	15,000	2,600
*	3-16-05		82,000	4,000	8,600	3,900	18,000	4,300
*	6-09-05		52,000	3,600	6,400	3,300	17,000	3,500
*	9-22-05		62,000	3,500	5,400	3,900	17,000	2,100
*	12-7-05		40,000	3,300	7,500	3,700	18,000	2,500
*	3-10-06		53,000	3,600	6,900	4,000	18,000	3,300
*	6-07-06		57,000	4,200	12,000	3,700	16,000	3,900
*	9-11-06		120,000	3,600	9,500	5,200	23,000	3,000
*	12-13-06		21,000	2,600	8,400	4,300	20,000	1,200
*	3-12-07		96,000	2,300	5,600	5,900	26,000	1,400
*	6-6-07		58,000	2,000	3,400	3,900	16,000	1,500
*	9-6-07		84,000	3,000	4,300	6,000	25,000	2,300
*	12-14-07		55,000	2,500	2,400	4,400	18,000	1,900
*	3-13-08		80,000	2,400	5,400	4,700	22,000	2,000
*	6-13-08		87,000	2,800	2,200	5,000	21,000	3,100
*	09-09-08		34,400	2,040	1,120	2,390	10,100	1,890
*	12-12-08		91,000	2,110	1,240	3,660	17,200	1,560
*	03-12-09		92,000	1,510	1,240	2,630	16,500	1,040
*	06-04-09		61,200	1,780	711	3,840	14,600	1,580
*	12-03-09		66,300	2,300	346	4,100	15,400	2,690

TABLE II
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
(CONTINUED)

Sample ID	Sample Date	Sample Location	TPHG µg/L	Benzene µg/L	Toluene µg/L	Ethyl benzene µg/L	Xylenes µg/L	MTBE µg/L
MW-2	8-18-00	MW2	290,000	3700	990	7,300	26,000	ND ³
*	3-30-01		47,000	3,200	470	4,500	13,000	3,100
*	6-22-01		57,000	2,500	350	4,200	12,000	1,800
*	9-20-01		42,000	2,300	230	4,300	12,000	2,200
*	12-27-01		70,000	2,900	390	4,800	14,000	2,400
*	9-24-02		110,000	1,600	200	3,400	9,100	2,500
*	12-17-02		66,000	2,400	340	4,600	13,000	1,900
*	4-2-03		29,000	1,000	130	2,300	5,100	2,000
*	6-12-03		8,700	380	52	790	2,000	2,200
*	9-29-03		52,000	1,700	200	4,500	9,800	2,300
*	12-04-03		66,000	1,500	210	4,500	9,200	1,900
*	03-09-04		61,000	1,500	2,000	4,200	8,500	2,200
*	6-24-04		29,000	1,200	72	3,100	6,000	2,100
*	9-09-04		37,000	1,600	110	4,000	8,500	3,100
*	12-21-04		27,000	1,400	84	3,100	5,400	3,200
*	3-16-05		54,000	1,700	140	4,500	8,900	4,000
*	6-09-05		2,800	420	ND ³	180	51	930
*	9-22-05		33,000	1,400	ND	3,400	5,700	2,200
*	12-7-05		20,000	1,600	130	3,400	6,000	3,000
*	3-10-06		34,000	2,100	170	4,200	7,500	4,400
*	6-07-06		29,000	2,400	250	3,600	5,100	3,200
*	9-11-06		32,000	1,100	140	2,400	3,500	1,600
*	12-13-06		36,000	1,400	220	3,400	4,900	1,900
*	3-12-07		36,000	1,200	250	3,800	5,700	1,800
*	6-6-07		24,000	1,100	170	3,000	4,200	1,400
*	9-6-07		44,000	1,600	290	5,700	6,800	1,900
*	12-14-07		28,000	1,200	160	3,600	3,700	1,500
*	3-13-08		47,000	1,100	190	5,800	7,500	1,200
*	6-13-08		40,000	950	170	4,600	4,800	1,400
*	09-09-08		20,300	706	121	2,680	2,580	1,180
*	12-12-08		48,000	826	114	4,050	4,250	1,610
*	03-12-09		43,000	686	128	2,740	4,520	974
*	06-04-09		20,600	440	94.3	2,770	2,270	717
*	12-03-09		26,600	372	29.7	3,250	2,250	608

TABLE II
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
(CONTINUED)

Sample ID	Sample Date	Sample Location	TPHG µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MTBE µg/L
MW-3	8-18-00	MW3	46,000	3,200	550	3,700	14,000	2,200
*	3-30-01		30,000	3,300	340	2,800	9,100	4,700
*	6-22-01		35,000	4,000	340	2,900	7,600	4,100
*	9-20-01		30,000	3,800	260	2,500	6,600	5,300
*	12-27-01		39,000	4,400	340	3,000	6,700	5,500
*	9-24-02		53,000	4,100	270	3,100	6,600	6,400
*	12-17-02		40,000	3,600	240	2,200	5,700	5,200
*	4-2-03		24,000	2,000	130	1,800	3,300	3,000
*	6-12-03		26,000	2,700	180	2,000	4,200	5,500
*	9-29-03		39,000	4,000	220	3,200	5,300	4,800
*	12-04-03		40,000	3,200	180	2,200	4,300	4,400
*	03-09-04		39,000	3,100	160	2,100	4,400	4,000
*	6-24-04		21,000	3,000	110	2,300	3,800	3,400
*	9-09-04		26,000	4,100	140	2,200	4,300	6,000
*	12-21-04		20,000	3,400	99	1,700	2,900	6,400
*	3-16-05		35,000	1,800	78	1,900	2,600	4,000
*	6-09-05		2,000	55	ND	120	30	150
*	9-22-05		17,000	2,000	69	1,500	1,900	3,500
*	12-7-05		11,000	1,800	62	1,500	1,700	2,300
*	3-10-06		9,100	1,100	24	990	810	1,300
*	6-07-06		3,000	440	16	180	450	320
*	9-11-06		17,000	1,300	38	1,000	1,600	690
*	12-13-06		13,000	1,200	ND	1,000	1,300	520
*	3-12-07		120,000	10,000	210	11,000	11,000	ND
*	6-6-07		13,000	1,200	19	1,100	1,100	590
*	9-6-07		22,000	1,900	32	2,000	1,600	1,000
*	12-14-07		16,000	1,400	23	1,200	1,300	600
*	3-13-08		10,000	870	ND	1,000	670	420
*	6-13-08		15,000	1,300	27	1,300	1,200	660
*	09-09-08		9,030	890	<10	695	372	460
*	12-12-08		26,000	1,200	15.4	995	875	423
*	03-12-09		15,000	759	18.3	704	1,010	300
*	06-04-09		19,500	2,250	25.1	1,330	1,050	577

**TABLE II
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
(CONTINUED)**

Sample ID	Sample Date	Sample Location	TPHG µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MTBE µg/L
MW-4 * * *	6-7-06	MW4	<25	<0.5	<0.5	<0.5	<0.5	<1
	9-11-06		<25	<0.5	<0.5	<0.5	<0.5	<1
	12-13-06		<25	<0.5	<0.5	<0.5	<0.5	<1
	3-12-07		<25	<0.5	<0.5	<0.5	<0.5	<1
	6-6-07		NS ³	NS	NS	NS	NS	NS
	9-6-07		NS	NS	NS	NS	NS	NS
	12-14-07		NS	NS	NS	NS	NS	NS
	3-13-08		NS	NS	NS	NS	NS	NS
	6-13-08		NS	NS	NS	NS	NS	NS
	09-09-08		NS	NS	NS	NS	NS	NS
	12-12-08		NS	NS	NS	NS	NS	NS
	03-12-09		NS	NS	NS	NS	NS	NS
	06-04-09		NS	NS	NS	NS	NS	NS
	12-03-09		NS	NS	NS	NS	NS	NS
MW-5 * * *	6-7-06	MW5	<25	<0.5	<0.5	<0.5	<0.5	<1
	9-11-06		<25	<0.5	<0.5	<0.5	<0.5	<1
	12-13-06		<25	<0.5	<0.5	<0.5	<0.5	<1
	3-12-07		<25	<0.5	<0.5	<0.5	<0.5	<1
	6-6-07		NS	NS	NS	NS	NS	NS
	9-6-07		NS	NS	NS	NS	NS	NS
	12-14-07		NS	NS	NS	NS	NS	NS
	3-13-08		NS	NS	NS	NS	NS	NS
	6-13-08		NS	NS	NS	NS	NS	NS
	09-09-08		NS	NS	NS	NS	NS	NS
	12-12-08		NS	NS	NS	NS	NS	NS
	03-12-09		NS	NS	NS	NS	NS	NS
	06-04-09		NS	NS	NS	NS	NS	NS
	12-03-09		NS	NS	NS	NS	NS	NS

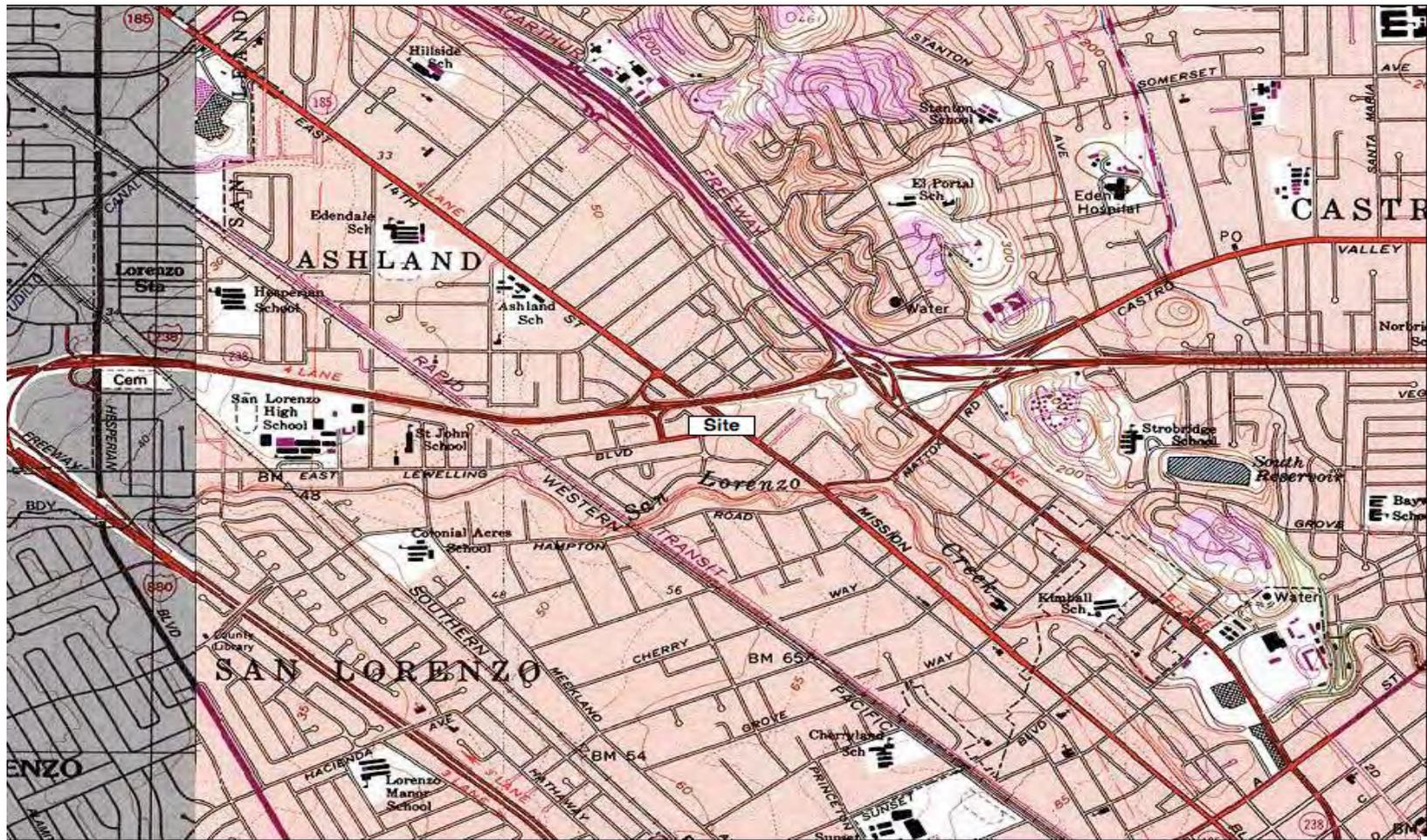
TABLE II
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
(CONTINUED)

Sample ID	Sample Date	Sample Location	TPHG µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MTBE µg/L
MW-6	6-7-06	MW6	<25	<0.5	<0.5	<0.5	<0.5	<1
*	9-11-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	12-13-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	3-12-07		<25	<0.5	<0.5	<0.5	<0.5	<1
*	6-6-07		<25	<0.5	<0.5	<0.5	<0.5	<1
*	9-6-07		<25	<0.5	<0.5	<0.5	<0.5	<1
*	12-14-07		<25	<0.5	<0.5	<0.5	<0.5	<1
*	3-13-08		<25	<0.5	<0.5	<0.5	<0.5	<1
*	6-13-08		<25	<0.5	<0.5	<0.5	<1	<1
*	09-09-08		<25	<0.3	<0.5	<0.3	<0.7	<0.5
*	12-12-08		<50	<0.5	<0.5	<0.5	<1.5	<0.5
*	03-12-09		<50	<0.5	<0.5	<0.5	<1.5	<0.5
*	06-04-09		<25	<0.3	<0.5	<0.3	<0.7	<0.5
*	12-03-09		<25	<0.3	<0.5	<0.3	<0.7	<0.5
MW-7	6-7-06	MW7	<25	<0.5	<0.5	<0.5	<0.5	<1
*	9-11-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	12-13-06		<25	<0.5	<0.5	<0.5	<0.5	<1
*	3-12-07		27	<0.5	<0.5	<0.5	<0.5	<1
*	6-6-07		<25	<0.5	<0.5	<0.5	<0.5	<1
*	9-6-07		<25	<0.5	<0.5	<0.5	<0.5	<1
*	12-14-07		<25	<0.5	<0.5	<0.5	<0.5	<1
*	3-13-08		<25	<0.5	<0.5	<0.5	<0.5	<1
*	6-13-08		<25	<0.5	<0.5	<0.5	<1	<1
*	09-09-08		<25	<0.5	<0.5	<0.5	<1	<1
*	12-12-08		<50	<0.5	<0.5	<0.5	<1.5	<0.5
*	03-12-09		<50	<0.5	<0.5	<0.5	<1.5	<0.5
*	06-04-09		<25	<0.3	<0.5	<0.3	<0.7	<0.5

NOTE: 546 µg/L tert-Butyl Alcohol (TBA) was detected in sample MW-2, and 3,750 µg/L TBA was detected in sample MW-3

1. TPHG = Total Petroleum Hydrocarbons as Gasoline
2. MTBE = Methyl Tertiary Butyl Ether
3. NS = Not Sampled

* The Sample was analyzed for Fuel Oxygenates using EPA Method 8260B. Analytical result is for MTBE



TN \star MN
15°

0 1000 FEET 0 500 1000 METERS
0 1 MILE

Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

980 W. Taylor Street, San Jose, CA 95126
Phone [408] 971-6758 • Fax [408] 971-6759

SITE LOCATION MAP

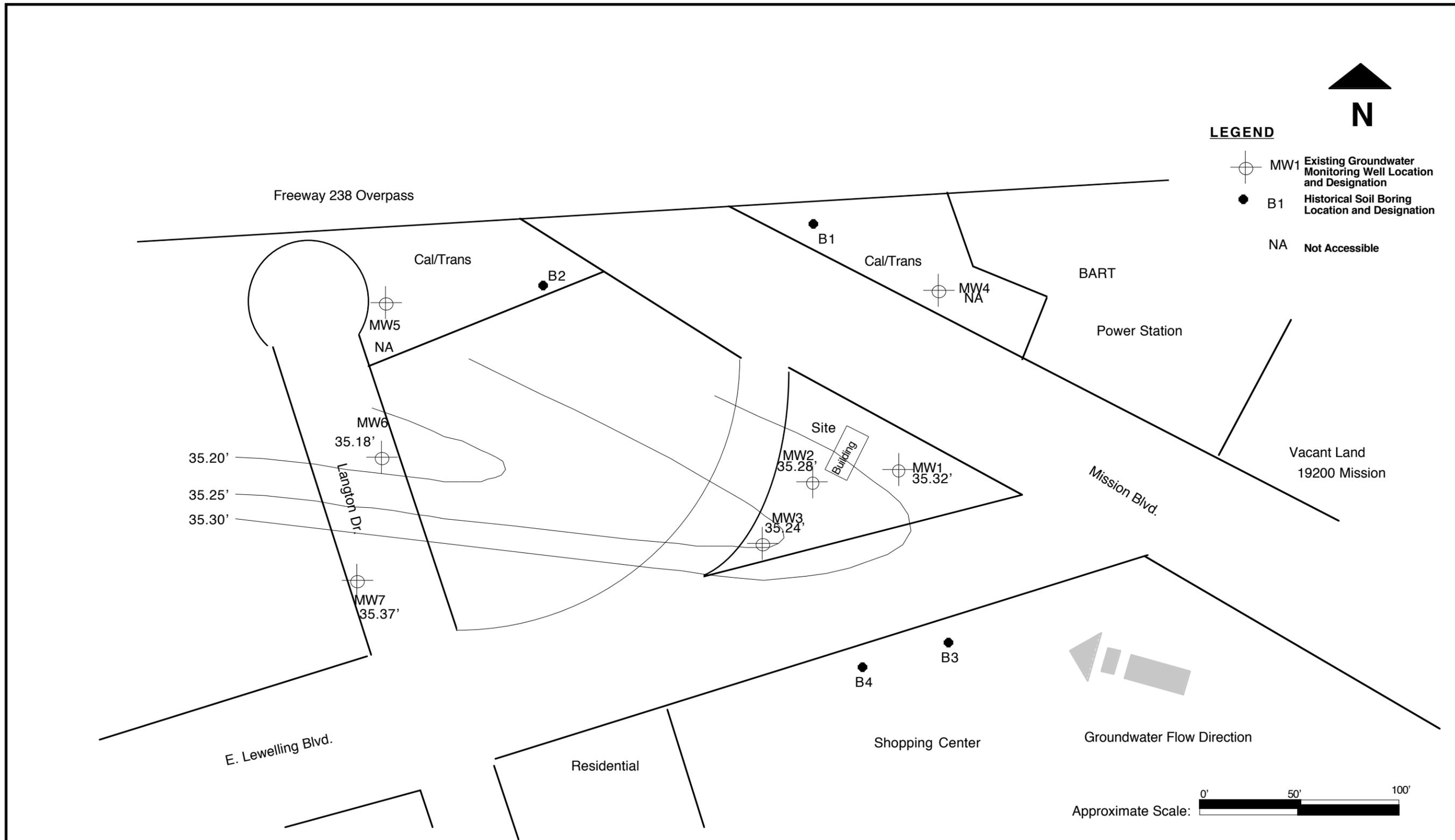
**Second Semi-Annual 2009 Groundwater Monitoring
ABE Petroleum LLC**

17715 Mission Boulevard • Hayward • California

FIGURE

1

December 22, 2009
Project 03-103.00



SIERRA ENVIRONMENTAL, INC.

Environmental Consultants

980 W. Taylor Street, San Jose, CA 95126

Phone [408] 971-6758 • Fax [408] 971-6759

On-Site & Off-Site Monitoring Well and Boring Locations

**Second Semi-Annual 2009 Groundwater Monitoring
ABE Petroleum LLC**

17715 Mission Boulevard • Hayward • California

FIGURE

2

December 22, 2009
Project 03-103.00

Appendix A
BACKGROUND INFORMATION

BACKGROUND

On September 16, 1997, Balch Petroleum Contractors & Builders, Inc. (Balch) of Milpitas, California, removed one 2,000-gallon, two 6,000-gallon, one 10,000-gallon single-wall steel gasoline, and one 500-gallon single-wall steel waste oil USTs from the Site. Former UST locations are shown in Figure A of this appendix.

No hole or damage was observed in the tanks. No groundwater was encountered in the tank excavations. After UST removal, Sierra collected soil samples from the tank excavations for chemical analysis.

Up to 2,300 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHG) was detected in the soil samples collected from beneath the tanks at approximately 14 feet below ground surface (bgs). The soil sample locations are shown in Figure A.

On August 14, 2000, Sierra drilled three exploratory soil borings and converted them to groundwater monitoring well MW1 through MW3. The wells are approximately 35 feet deep. Sierra collected soil and groundwater samples from the borings/wells for chemical analysis. The analytical results showed up to 720 ppm TPHG, 2.2 ppm benzene, and 3.4 ppm methyl tertiary butyl ether (MTBE) in the soil samples. Up to 290000 ppb TPHG, 10000 ppb benzene, and 4300 ppb MTBE were detected in the groundwater samples. Gasoline constituents were detected in groundwater samples collected from all three monitoring wells. Groundwater monitoring well locations are shown on Figure 2.

Starting March 30, 2001, Sierra performed quarterly groundwater monitoring at the Site. The field and analytical results are presented in Table I and II.

On May 4, 2006, Sierra retained services of Vironex Environmental Services (Vironex) to drill soil boring B1 through B4 at the Jack In The Box and Cal/Trans properties. Sierra collected grab groundwater samples from the borings for chemical analysis. Up to 370 $\mu\text{g/l}$ total petroleum hydrocarbons as gasoline (TPHG), 16 $\mu\text{g/l}$ toluene, 15 $\mu\text{g/l}$ ethylbenzene, and 100 $\mu\text{g/l}$ xylenes were detected in the water sample collected from the borings (B3 and B4) advanced at the Jack In The Box property. No benzene or MTBE was detected in water samples collected at this property. 3.2 $\mu\text{g/l}$ MTBE was detected in the water samples collected from the borings advanced at the Cal/Trans properties. The MTBE was detected in boring B2 located within 300 feet northwest at hydraulic down gradient of the Site. On May 10 and 11, 2006, Sierra retained services of Hew Drilling Company, Inc. (Hew) to construct 4 groundwater monitoring wells (MW4 through MW7) at the CalTrans properties, and Langton Drive. After the well construction, Sierra had the wellheads surveyed, developed the wells, and collected groundwater samples from the wells for chemical analysis. No gasoline constituents were detected in the groundwater samples collected from the wells. The analytical results for the soil and groundwater samples collected from the boring and the wells suggest the tip of the dissolved MTBE plume in the groundwater is confined within 300

feet northwest of the Site. The length of the dissolved plume of other gasoline constituents in groundwater were shorter than the MTBE plume. Figure 2 shows the groundwater monitoring well locations.

On September 11, 2006, Sierra started quarterly groundwater monitoring of MW1 through MW7. Table I and II presents the groundwater measurement and analytical data.

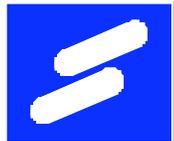
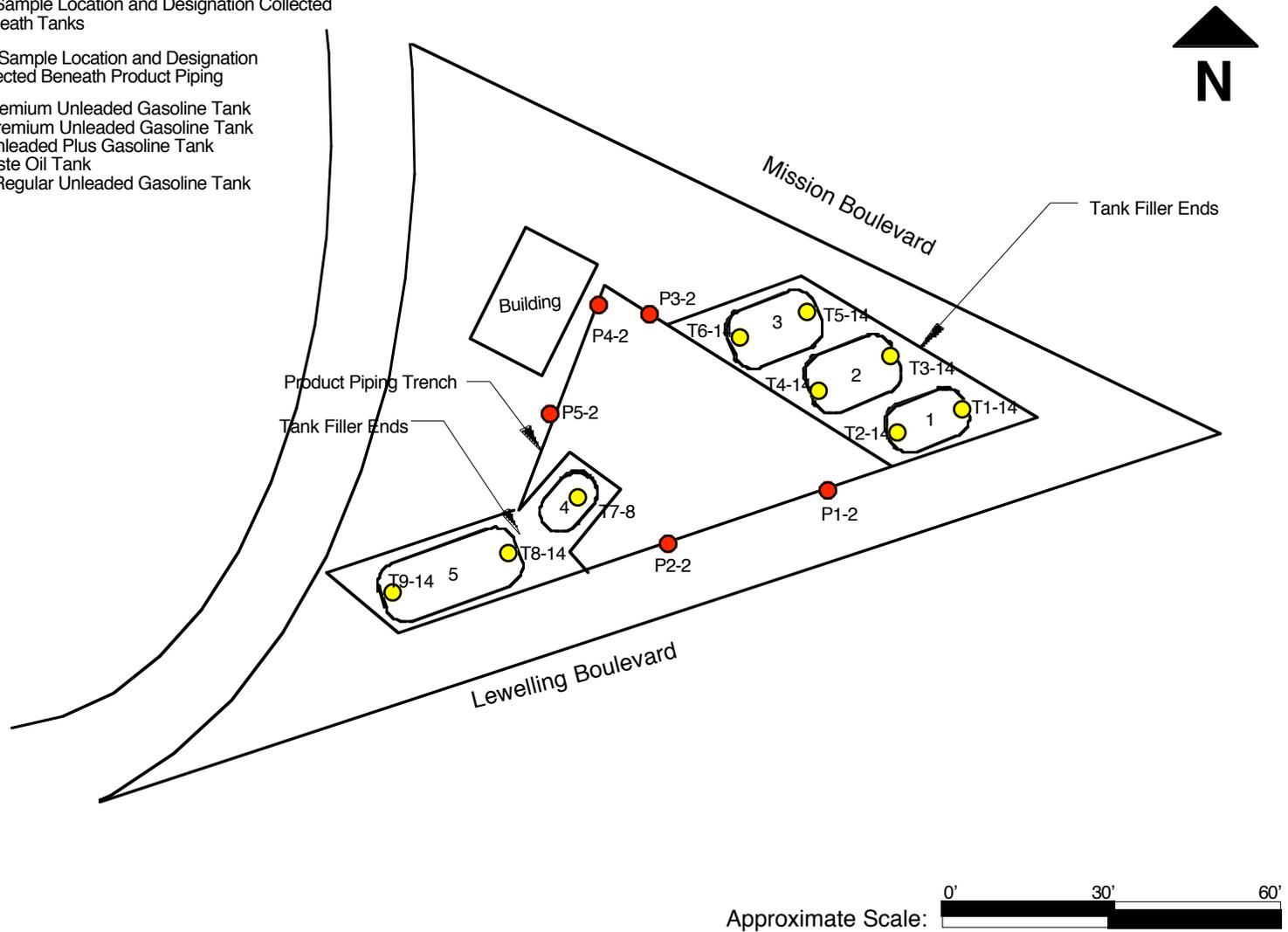
On August 27, 28, and 31 2009, Sierra had 9 membrane interface probes [MIP (B1 through B9)] advanced at the Site. The MIPs were extended to 40 feet bgs. Before advancing the MIPs, on August 27, 2009, Sierra had confirmatory soil boring S1 advanced near MW1 to explore depth of first encountered groundwater, and collected soil and groundwater samples for chemical analysis, soil oxygen demand (SOD), permeability, and gradations tests. Soil explored/tested at the Site consisted of silty clay/silty sandy clay to approximately 35 feet bgs and sandy gravel encountered at 35 through 40 feet below ground surface. Groundwater was first encountered in boring S1 at approximately 31 feet bgs and raised to 25 feet bgs.

The MIP results suggest that soil impacted with the gasoline constituents exist from approximately 10 feet bgs to the saturated zone. The horizontal extend of impacted soil is within approximately 25 feet radius of MW1. MIP results depicted higher contaminant concentrations at 20-25 feet and 30-32 feet bgs.

Up to 320,000 $\mu\text{g}/\text{kg}$ TPHG, 1170 $\mu\text{g}/\text{kg}$ benzene, and 1150 $\mu\text{g}/\text{kg}$ MTBE were detected in the soil representing 20 feet bgs in boring S1 (confirmatory boring), at the source area. Also, up to 59,900 $\mu\text{g}/\text{l}$ of TPHG, 1680 $\mu\text{g}/\text{l}$ benzene, and 893 $\mu\text{g}/\text{l}$ MTBE were detected in the grab water collected from boring S1. High/moderate concentrations of gasoline constituents were also detected in grab groundwater samples at all the MIP borings. Summary of the analytical results are presented in Table I and II of the Remedial Investigation/Feasibility Study report dated September 29, 2009.

LEGEND

- T1-14 Soil Sample Location and Designation Collected Beneath Tanks
 - P1-2 Soil Sample Location and Designation Collected Beneath Product Piping
- 1 = 2,000-Gallon Premium Unleaded Gasoline Tank
 2 = 6,000-Gallon Premium Unleaded Gasoline Tank
 3 = 6,000-Gallon Unleaded Plus Gasoline Tank
 4 = 500-Gallon Waste Oil Tank
 5 = 10,000-Gallon Regular Unleaded Gasoline Tank



SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

980 W. Taylor St., San Jose, CA 95126
 Phone [408]971-6758 • Fax [408] 971-6759

Former UST and Soil Sample Locations

**Second Semi-Annual 2009 Groundwater Monitoring
 ABE Petroleum LLC**

17715 Mission Boulevard • Hayward • California

FIGURE

A

December 22, 2009
 Project 03-103.00

Appendix B
QA/QC PROTOCOL

QA/QC PROTOCOL

Groundwater Level and Well Depth Measurements

Groundwater level and well depths are measured using electrical sounder. An electrical sounder consists of a reel, two-conductor cable, a water sensor, and a control panel with a buzzer. To measure groundwater level, the sensor is lowered into a well. A low current circuit is completed when the sensor makes contact with water. The current in the circuit is then amplified and activates a buzzer which produce an audible signal. Cable markings are divided at 0.05-foot increments. Well depths are measured to the nearest 0.01 foot. Groundwater levels are measured before and after sample collection to ensure data accuracy.

Well Purging

Low flow submersible electrical pumps or bailers are used to purge groundwater monitoring wells. Approximately 3 to 5 well casing volume of water is removed from the well as a measure to stabilize natural, and representative groundwater in each well. pH, electrical conductivity, and temperature of the purged water is measured and recorded at approximately each casing volume interval. Purge water is stabilized when pH is recorded within 0.5 unit, electrical conductivity is within 5 percent, and temperature is within 1.0 degree Celsius.

Groundwater Sampling

Groundwater samples are transferred into appropriate containers provided by certified analytical laboratories. The containers include proper preservatives, and labels with appropriate project information. Groundwater is transferred into the containers with as little agitation as possible. After collection, containers are sealed and checked to ensure that no head space or air bubbles are present in the sample.

After collection, if required, samples are kept in a cooler to be delivered to analytical laboratory with chain-of-custody documentation.

Equipment Decontamination

All sampling equipment are washed with Liqui-Nox[®] (a phosphate free laboratory detergent), and rinsed with tap water before each sampling event, and at each sampling interval. To reduce the risk of cross contamination, wells which have shown lower levels of contamination historically are purged and sampled first.

Analytical Procedures

Samples are analyzed by an accredited State-certified analytical laboratory using procedures prescribed by United State Environmental Protection Agency (EPA) and other Federal, State, and Local agencies. At minimum a field blank is analyzed with each group of samples for quality assurance measures. At minimum two qualified personnel review analytical results and compare them with historical data for consistency and accuracy.

Field Reports

All field observations are documented in field reports. A field report contain project information, climatic condition, contractor/subcontractor information, field observation, discussions and communications during each particular field activity. Field reports are stored in appropriate project files. Project managers review field reports to obtain necessary information regarding the status of each project on daily basis.

Appendix C
CERTIFIED ANALYTICAL REPORTS AND
CHAIN-OF-CUSTODY DOCUMENTATION



Technical Report for

Sierra Environmental, Inc.

T0600102154-ABE, 17715 Mission Boulevard, CA

03-103.00

Accutest Job Number: C8677

Sampling Date: 12/03/09

Report to:

Sierra Environmental, Inc.
980 West Taylor Street
San Jose, CA 95126
maz.sierra@sbcglobal.net

ATTN: Mitch Hajiaghai

Total number of pages in report: **20**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

A handwritten signature in black ink, appearing to read "Laurie Glantz-Murphy".

Laurie Glantz-Murphy
Laboratory Director

Client Service contact: Diane Theesen 408-588-0200

Certifications: CA (08258CA)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.



Table of Contents

-1-

Section 1: Sample Summary	3
Section 2: Sample Results	4
2.1: C8677-1: MW-1	5
2.2: C8677-2: MW-2	6
2.3: C8677-3: MW-3	7
2.4: C8677-4: MW-6	8
2.5: C8677-5: MW-7	9
Section 3: Misc. Forms	10
3.1: Chain of Custody	11
Section 4: GC/MS Volatiles - QC Data Summaries	12
4.1: Method Blank Summary	13
4.2: Blank Spike Summary	15
4.3: Matrix Spike/Matrix Spike Duplicate Summary	19



Sample Summary

Sierra Environmental, Inc.

Job No: C8677

T0600102154-ABE, 17715 Mission Boulevard, CA
 Project No: 03-103.00

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
C8677-1	12/03/09	12:40 MH	12/03/09	AQ	Ground Water	MW-1
C8677-2	12/03/09	12:20 MH	12/03/09	AQ	Ground Water	MW-2
C8677-3	12/03/09	12:00 MH	12/03/09	AQ	Ground Water	MW-3
C8677-4	12/03/09	11:40 MH	12/03/09	AQ	Ground Water	MW-6
C8677-5	12/03/09	11:20 MH	12/03/09	AQ	Ground Water	MW-7



Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: MW-1	
Lab Sample ID: C8677-1	Date Sampled: 12/03/09
Matrix: AQ - Ground Water	Date Received: 12/03/09
Method: SW846 8260B	Percent Solids: n/a
Project: T0600102154-ABE, 17715 Mission Boulevard, CA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N11456.D	100	12/09/09	TF	n/a	n/a	VN383
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

BTEX, Oxygenates

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	2300	100	30	ug/l	
108-88-3	Toluene	346	100	50	ug/l	
100-41-4	Ethylbenzene	4100	100	30	ug/l	
1330-20-7	Xylene (total)	15400	200	70	ug/l	
108-20-3	Di-Isopropyl ether	ND	500	50	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	500	50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	2690	100	50	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	500	50	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	1000	500	ug/l	
	TPH-GRO (C6-C10)	66300	5000	2500	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		60-130%
2037-26-5	Toluene-D8	100%		60-130%
460-00-4	4-Bromofluorobenzene	102%		60-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-2		
Lab Sample ID: C8677-2		Date Sampled: 12/03/09
Matrix: AQ - Ground Water		Date Received: 12/03/09
Method: SW846 8260B		Percent Solids: n/a
Project: T0600102154-ABE, 17715 Mission Boulevard, CA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N11457.D	50	12/09/09	TF	n/a	n/a	VN383
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

BTEX, Oxygenates

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	372	50	15	ug/l	
108-88-3	Toluene	29.7	50	25	ug/l	J
100-41-4	Ethylbenzene	3250	50	15	ug/l	
1330-20-7	Xylene (total)	2250	100	35	ug/l	
108-20-3	Di-Isopropyl ether	ND	250	25	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	250	25	ug/l	
1634-04-4	Methyl Tert Butyl Ether	608	50	25	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	250	25	ug/l	
75-65-0	Tert-Butyl Alcohol	546	500	250	ug/l	
	TPH-GRO (C6-C10)	26600	2500	1300	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		60-130%
2037-26-5	Toluene-D8	99%		60-130%
460-00-4	4-Bromofluorobenzene	100%		60-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-3		Date Sampled: 12/03/09
Lab Sample ID: C8677-3		Date Received: 12/03/09
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: T0600102154-ABE, 17715 Mission Boulevard, CA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N11487.D	40	12/10/09	TF	n/a	n/a	VN384
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

BTEX, Oxygenates

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	2250	40	12	ug/l	
108-88-3	Toluene	25.1	40	20	ug/l	J
100-41-4	Ethylbenzene	1330	40	12	ug/l	
1330-20-7	Xylene (total)	1050	80	28	ug/l	
108-20-3	Di-Isopropyl ether	ND	200	20	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	200	20	ug/l	
1634-04-4	Methyl Tert Butyl Ether	577	40	20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	200	20	ug/l	
75-65-0	Tert-Butyl Alcohol	3750	400	200	ug/l	
	TPH-GRO (C6-C10)	19500	2000	1000	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		60-130%
2037-26-5	Toluene-D8	99%		60-130%
460-00-4	4-Bromofluorobenzene	101%		60-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-6		Date Sampled: 12/03/09
Lab Sample ID: C8677-4		Date Received: 12/03/09
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: T0600102154-ABE, 17715 Mission Boulevard, CA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N11459.D	1	12/09/09	TF	n/a	n/a	VN383
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

BTEX, Oxygenates

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.30	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.70	ug/l	
108-20-3	Di-Isopropyl ether	ND	5.0	0.50	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	5.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	5.0	0.50	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	5.0	ug/l	
	TPH-GRO (C6-C10)	ND	50	25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		60-130%
2037-26-5	Toluene-D8	100%		60-130%
460-00-4	4-Bromofluorobenzene	97%		60-130%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-7		Date Sampled: 12/03/09
Lab Sample ID: C8677-5		Date Received: 12/03/09
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260B		
Project: T0600102154-ABE, 17715 Mission Boulevard, CA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N11460.D	1	12/09/09	TF	n/a	n/a	VN383
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

BTEX, Oxygenates

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.30	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.70	ug/l	
108-20-3	Di-Isopropyl ether	ND	5.0	0.50	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	5.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	5.0	0.50	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	5.0	ug/l	
	TPH-GRO (C6-C10)	ND	50	25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		60-130%
2037-26-5	Toluene-D8	106%		60-130%
460-00-4	4-Bromofluorobenzene	100%		60-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C8677
Account: SECASJ Sierra Environmental, Inc.
Project: T0600102154-ABE, 17715 Mission Boulevard, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VN383-MB	N11445.D	1	12/09/09	TF	n/a	n/a	VN383

The QC reported here applies to the following samples:

Method: SW846 8260B

C8677-1, C8677-2, C8677-4, C8677-5

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
108-20-3	Di-Isopropyl ether	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.30	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	5.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	5.0	0.50	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	5.0	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.70	ug/l	
	TPH-GRO (C6-C10)	ND	50	25	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	108% 60-130%
2037-26-5	Toluene-D8	109% 60-130%
460-00-4	4-Bromofluorobenzene	98% 60-130%

4.1.1
4

Method Blank Summary

Job Number: C8677
Account: SECASJ Sierra Environmental, Inc.
Project: T0600102154-ABE, 17715 Mission Boulevard, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VN384-MB	N11481.D	1	12/10/09	TF	n/a	n/a	VN384

The QC reported here applies to the following samples:

Method: SW846 8260B

C8677-3

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.30	ug/l	
108-20-3	Di-Isopropyl ether	ND	5.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.30	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	5.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	5.0	0.50	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	5.0	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.70	ug/l	
	TPH-GRO (C6-C10)	ND	50	25	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	104% 60-130%
2037-26-5	Toluene-D8	100% 60-130%
460-00-4	4-Bromofluorobenzene	93% 60-130%

4.1.2
4

Blank Spike Summary

Job Number: C8677
Account: SECASJ Sierra Environmental, Inc.
Project: T0600102154-ABE, 17715 Mission Boulevard, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VN383-BS	N11446.D	1	12/09/09	TF	n/a	n/a	VN383

The QC reported here applies to the following samples:

Method: SW846 8260B

C8677-1, C8677-2, C8677-4, C8677-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	20.3	102	60-130
108-20-3	Di-Isopropyl ether	20	19.5	98	60-130
100-41-4	Ethylbenzene	20	20.7	104	60-130
637-92-3	Ethyl Tert Butyl Ether	20	20.4	102	60-130
1634-04-4	Methyl Tert Butyl Ether	20	20.2	101	60-130
994-05-8	Tert-Amyl Methyl Ether	20	19.8	99	60-130
75-65-0	Tert-Butyl Alcohol	100	113	113	60-130
108-88-3	Toluene	20	19.9	100	60-130
1330-20-7	Xylene (total)	60	59.1	99	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	104%	60-130%
2037-26-5	Toluene-D8	101%	60-130%
460-00-4	4-Bromofluorobenzene	102%	60-130%

4.2.1
4

Blank Spike Summary

Job Number: C8677
Account: SECASJ Sierra Environmental, Inc.
Project: T0600102154-ABE, 17715 Mission Boulevard, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VN383-BS	N11447.D	1	12/09/09	TF	n/a	n/a	VN383

The QC reported here applies to the following samples:

Method: SW846 8260B

C8677-1, C8677-2, C8677-4, C8677-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
	TPH-GRO (C6-C10)	125	137	110	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	60-130%
2037-26-5	Toluene-D8	104%	60-130%
460-00-4	4-Bromofluorobenzene	96%	60-130%

4.2.2
4

Blank Spike Summary

Job Number: C8677
Account: SECASJ Sierra Environmental, Inc.
Project: T0600102154-ABE, 17715 Mission Boulevard, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VN384-BS	N11482.D	1	12/10/09	TF	n/a	n/a	VN384

The QC reported here applies to the following samples:

Method: SW846 8260B

C8677-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.9	100	60-130
108-20-3	Di-Isopropyl ether	20	19.5	98	60-130
100-41-4	Ethylbenzene	20	19.6	98	60-130
637-92-3	Ethyl Tert Butyl Ether	20	20.7	104	60-130
1634-04-4	Methyl Tert Butyl Ether	20	20.1	101	60-130
994-05-8	Tert-Amyl Methyl Ether	20	20.0	100	60-130
75-65-0	Tert-Butyl Alcohol	100	112	112	60-130
108-88-3	Toluene	20	18.7	94	60-130
1330-20-7	Xylene (total)	60	55.7	93	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	106%	60-130%
2037-26-5	Toluene-D8	97%	60-130%
460-00-4	4-Bromofluorobenzene	102%	60-130%

4.2.3
4

Blank Spike Summary

Job Number: C8677
Account: SECASJ Sierra Environmental, Inc.
Project: T0600102154-ABE, 17715 Mission Boulevard, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VN384-BS	N11483.D	1	12/10/09	TF	n/a	n/a	VN384

The QC reported here applies to the following samples:

Method: SW846 8260B

C8677-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
	TPH-GRO (C6-C10)	125	127	102	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	104%	60-130%
2037-26-5	Toluene-D8	98%	60-130%
460-00-4	4-Bromofluorobenzene	97%	60-130%

4.2.4
4

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C8677
Account: SECASJ Sierra Environmental, Inc.
Project: T0600102154-ABE, 17715 Mission Boulevard, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C8677-5MS	N11461.D	1	12/09/09	TF	n/a	n/a	VN383
C8677-5MSD	N11462.D	1	12/09/09	TF	n/a	n/a	VN383
C8677-5	N11460.D	1	12/09/09	TF	n/a	n/a	VN383

The QC reported here applies to the following samples:

Method: SW846 8260B

C8677-1, C8677-2, C8677-4, C8677-5

CAS No.	Compound	C8677-5 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	19.6	98	19.8	99	1	60-130/25
108-20-3	Di-Isopropyl ether	ND	20	20.3	102	19.7	99	3	60-130/25
100-41-4	Ethylbenzene	ND	20	19.4	97	19.5	98	1	60-130/25
637-92-3	Ethyl Tert Butyl Ether	ND	20	21.9	110	20.9	105	5	60-130/25
1634-04-4	Methyl Tert Butyl Ether	ND	20	22.0	110	20.6	103	7	60-130/25
994-05-8	Tert-Amyl Methyl Ether	ND	20	21.3	107	20.2	101	5	60-130/25
75-65-0	Tert-Butyl Alcohol	ND	100	130	130	105	105	21	60-130/25
108-88-3	Toluene	ND	20	18.6	93	18.7	94	1	60-130/25
1330-20-7	Xylene (total)	ND	60	55.3	92	55.6	93	1	60-130/25

CAS No.	Surrogate Recoveries	MS	MSD	C8677-5	Limits
1868-53-7	Dibromofluoromethane	109%	105%	106%	60-130%
2037-26-5	Toluene-D8	98%	96%	106%	60-130%
460-00-4	4-Bromofluorobenzene	105%	101%	100%	60-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C8677
Account: SECASJ Sierra Environmental, Inc.
Project: T0600102154-ABE, 17715 Mission Boulevard, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C8651-4MS	N11501.D	1	12/10/09	TF	n/a	n/a	VN384
C8651-4MSD	N11502.D	1	12/10/09	TF	n/a	n/a	VN384
C8651-4	N11491.D	1	12/10/09	TF	n/a	n/a	VN384

The QC reported here applies to the following samples:

Method: SW846 8260B

C8677-3

CAS No.	Compound	C8651-4 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	20.0	100	20.3	102	1	60-130/25
108-20-3	Di-Isopropyl ether	ND	20	19.7	99	19.8	99	1	60-130/25
100-41-4	Ethylbenzene	ND	20	19.6	98	19.6	98	0	60-130/25
637-92-3	Ethyl Tert Butyl Ether	ND	20	20.5	103	20.9	105	2	60-130/25
1634-04-4	Methyl Tert Butyl Ether	ND	20	20.6	103	20.8	104	1	60-130/25
994-05-8	Tert-Amyl Methyl Ether	ND	20	20.2	101	20.2	101	0	60-130/25
75-65-0	Tert-Butyl Alcohol	ND	100	121	121	126	126	4	60-130/25
108-88-3	Toluene	ND	20	18.7	94	18.8	94	1	60-130/25
1330-20-7	Xylene (total)	ND	60	55.7	93	55.0	92	1	60-130/25

CAS No.	Surrogate Recoveries	MS	MSD	C8651-4	Limits
1868-53-7	Dibromofluoromethane	105%	104%	109%	60-130%
2037-26-5	Toluene-D8	95%	97%	101%	60-130%
460-00-4	4-Bromofluorobenzene	95%	100%	98%	60-130%

Appendix D
FIELD NOTES



SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

GROUNDWATER MONITORING DATA FORM

Project No: 03-103.00

Date: 12/03/09

Project Name: ABE

Well N°: MW-1

Field Personnel: Mike & Maz

Weather: Sunny

Project Location: 17715 Mission Boulevard, Hayward

PURGE WATER VOLUME CALCULATION	Total Well Depth (ft)	Depth to Water (ft)	Water Column (ft)	Multiplier Casing Diameter			Casing Volume (gal)	Purged Volume (gal)
				2"	4"	6"		
	33.25	24.78	9.07	0.16	0.64	1.44	1.45	24.0

Purge Method: Bailer Measuring Reference: TOC

Time						
Volume Purged (gal)		0	1.5	3.0	4.0	
Temperature (° F)		66.80	67.10	67.20	67.30	
pH		6.35	6.33	6.30	6.29	
Specific Conductivity (umhos/cm)		730	740	740	740	
Turbidity/Color		light gray	→	→	→	
Odor		Yes	→	→	→	

Comments: Hz odor and sheens



SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

GROUNDWATER MONITORING DATA FORM

Project No: 03-103.00

Date: 12/03/09

Project Name: ABE

Well N°: MW2

Field Personnel: Mike & Maz

Weather: Sunny

Project Location: 17715 Mission Boulevard, Hayward

PURGE WATER VOLUME CALCULATION	Total Well Depth (ft)	Depth to Water (ft)	Water Column (ft)	Multiplier Casing Diameter			Casing Volume (gal)	Purged Volume (gal)
	33.75	25.33	8.42	2"	4"	6"	1.34	4.0
				0.16	0.64	1.44		

Purge Method: Bailer Measuring Reference: TOC

Time						
Volume Purged (gal)	0	1.5	3.0	4.0		
Temperature (° F)	67.5	67.7	67.7	67.9		
pH	6.18	6.15	6.10	6.10		
Specific Conductivity (umhos/cm)	790	770	770	760		
Turbidity/Color	None gray	→	→	→		
Odor	yes	→	→	→		

Comments: _____



SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

GROUNDWATER MONITORING DATA FORM

Project No: 03-103.00

Date: 12/03/09

Project Name: ABE

Well N°: MW3

Field Personnel: Mike & Maz

Weather: Sunny

Project Location: 17715 Mission Boulevard, Hayward

PURGE WATER VOLUME CALCULATION	Total Well Depth (ft)	Depth to Water (ft)	Water Column (ft)	Multiplier Casing Diameter			Casing Volume (gal)	Purged Volume (gal)
				2"	4"	6"		
	33.75	24.49	9.26	0.16	0.64	1.44	1.48	≈ 4.5

Purge Method: Bailer Measuring Reference: TOC

Time						
Volume Purged (gal)		0	1.5	3.0	4.5	
Temperature (° F)		67.5	67.3	67.5	67.5	
pH		6.19	6.09	6.05	6.02	
Specific Conductivity (umhos/cm)		750	760	760	750	
Turbidity/Color		Light gray	→	→	→	
Odor		Yes	→	→	→	

Comments: _____



SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

GROUNDWATER MONITORING DATA FORM

Project No: 03-103.00

Date: 12/03/09

Project Name: ABE

Well N°: MW6

Field Personnel: Mike & Maz

Weather: Sunny

Project Location: 17715 Mission Boulevard, Hayward

PURGE WATER VOLUME CALCULATION	Total Well Depth (ft)	Depth to Water (ft)	Water Column (ft)	Multiplier Casing Diameter			Casing Volume (gal)	Purged Volume (gal)
				2"	4"	6"		
	25	21.45	3.55	0.16	0.64	1.44	156	≈ 2.0

Purge Method: Baller Measuring Reference: TOC

Time						
Volume Purged (gal)	0	0.5	1.0	2.0		
Temperature (° F)	66.6	66.8	67.1	67.2		
pH	6.29	6.25	6.25	6.25		
Specific Conductivity (umhos/cm)	810	810	810	810		
Turbidity/Color	Light Brown	→	→	→		
Odor	No	→	→	→		

Comments: _____



SIERRA ENVIRONMENTAL, INC.
Environmental Consultants

GROUNDWATER MONITORING DATA FORM

Project No: 03-103.00

Date: 12/03/09

Project Name: ABE

Well N°: MW7

Field Personnel: Mike & Maz

Weather: Sunny

Project Location: 17715 Mission Boulevard, Hayward

PURGE WATER VOLUME CALCULATION	Total Well Depth (ft)	Depth to Water (ft)	Water Column (ft)	Multiplier Casing Diameter			Casing Volume (gal)	Purged Volume (gal)
				2"	4"	6"		
	25	22.93	2.87	0.16	0.64	1.44	1.45	~ 1.5

Purge Method: Bailer

Measuring Reference: TOC

Time						
Volume Purged (gal)	0	5	10	15		
Temperature (° F)	67.2	67.3	67.3	67.3		
pH	6.25	6.23	6.23	6.21		
Specific Conductivity (umhos/cm)	830	830	820	830		
Turbidity/Color	Light Brown	→	→	→		
Odor	No	→	→	→		

Comments: _____